Instructions - Parts List

High-Flo® 4-Ball Pumps

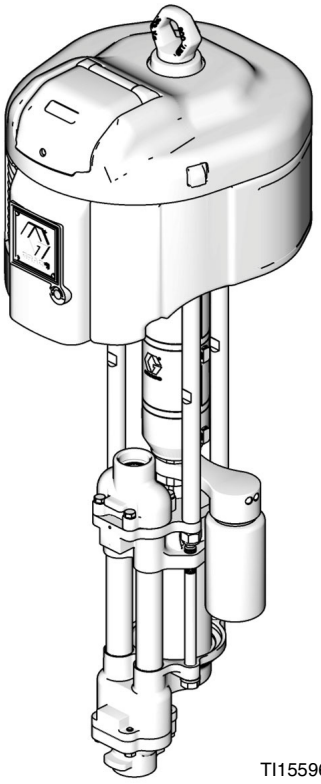
3A0538F

EN

Air-powered pumps for low pressure, high volume circulation of finishing materials. Do not use for flushing or purging lines with caustics, acids, abrasive line strippers, and other similar fluids. For professional use only.

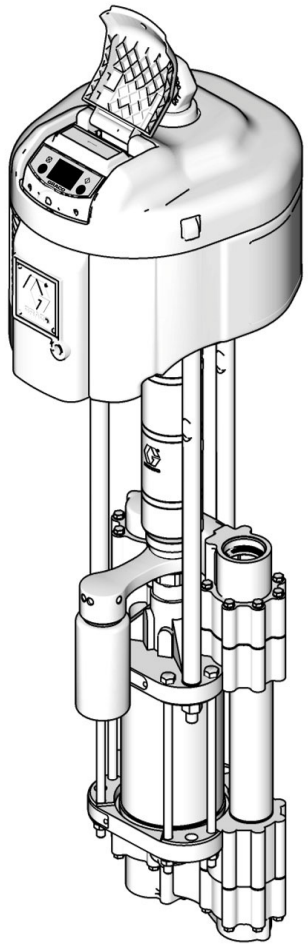
Important Safety Instructions
Read all warnings and instructions in this manual. Save these instructions.

See page 3 for model information, including maximum working pressure.



TI15596a

High-Flo Pump with 2000cc 4-Ball Lower



TI15605a

High-Flo Pump with 4000cc 4-Ball Lower

CE Ex II 2 G c IIB T3

PROVEN QUALITY. LEADING TECHNOLOGY.

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Models

Your model number is marked on the pump identification plate located toward the rear of the air motor. To determine the model number of your pump from the following matrix, select the six digits which describe your pump. The first digit is always J for circulation pumps. The remaining five digits define the construction. For example, a circulation pump with stainless steel construction, a 3.3:1 ratio, low noise exhaust, no DataTrak option, npt fittings, and Chromex rod and chrome cylinder is model number **J S 33 L 1**. To order replacement parts, see page 18.

J	S	33				L			1			
First Digit	**Second Digit**	**Third and Fourth Digit**				**Fifth Digit**			**Sixth Digit**			
	Material	**Ratio Code ‡**	**Motor Size**	**Lower Size**	**Maximum Fluid Pressure psi (MPa, bar)**		**Exhaust**	**DataTrak™**		**Fittings**	**Rod**	**Cylinder**
J (all circulation pumps)	**C** (carbon steel)	**17**	3400	4000	170 (1.2, 12.0)	**L**	Low Noise	No	**1**	npt	Chromex™	Chrome
	S (stainless steel)	**20**	2200	2000	200 (1.4, 14.0)	**M**	Low Noise	Yes	**2**	npt	Chromex	MaxLife®
		23	3400	3000	230 (1.6, 16.0)	**R**	Remote	No	**5**	tri-clamp	Chromex	Chrome
		30	2200	1500	300 (2.1, 21.0)	**S**	Remote	Yes	**6**	tri-clamp	Chromex	MaxLife
		33	6500	4000	330 (2.3, 23.0)							
		35	3400	2000	350 (2.4, 24.0)							
		40	2200	1000	400 (2.8, 28.0)							
		44	6500	3000	440 (3.0, 30.0)							
		45	3400	1500	450 (3.1, 31.0)							
		‡ Ratio Code XX = X.X:1 ratio										

Related Manuals

Part No.	Description
311238	NXT Air Motor manual
3A0539	4-Ball Lower manual (1000cc, 1500cc, and 2000cc)
3A0540	4-Ball Lower manual (3000cc and 4000cc)

Warnings

The following warnings are for the setup, use, grounding, maintenance, and repair of this equipment. The exclamation point symbol alerts you to a general warning and the hazard symbols refer to procedure-specific risks. When these symbols appear in the body of this manual, refer back to these Warnings. Product-specific hazard symbols and warnings not covered in this section may appear throughout the body of this manual where applicable.

⚠ WARNING

FIRE AND EXPLOSION HAZARD

Flammable fumes, such as solvent and paint fumes, in **work area** can ignite or explode. To help prevent fire and explosion:

- Use equipment only in well ventilated area.
- Eliminate all ignition sources; such as pilot lights, cigarettes, portable electric lamps, and plastic drop cloths (potential static arc).
- Keep work area free of debris, including solvent, rags and gasoline.
- Do not plug or unplug power cords, or turn power or light switches on or off when flammable fumes are present.
- Ground all equipment in the work area. See **Grounding** instructions.
- Use only grounded hoses.
- Hold gun firmly to side of grounded pail when triggering into pail.
- If there is static sparking or you feel a shock, **stop operation immediately.** Do not use equipment until you identify and correct the problem.
- Keep a working fire extinguisher in the work area.

Static charge may build up on plastic parts during cleaning and could discharge and ignite flammable vapors. To help prevent fire and explosion:

- Clean plastic parts only in a well ventilated area.
- Do not clean with a dry cloth.
- Do not operate electrostatic guns in equipment work area.

PRESSURIZED EQUIPMENT HAZARD

Fluid from the gun/dispense valve, leaks, or ruptured components can splash in the eyes or on skin and cause serious injury.

- Follow the **Pressure Relief Procedure** when you stop spraying and before cleaning, checking, or servicing equipment.
- Tighten all fluid connections before operating the equipment.
- Check hoses, tubes, and couplings daily. Replace worn or damaged parts immediately.

TOXIC FLUID OR FUMES HAZARD

Toxic fluids or fumes can cause serious injury or death if splashed in the eyes or on skin, inhaled, or swallowed.

- Read MSDSs to know the specific hazards of the fluids you are using.
- Store hazardous fluid in approved containers, and dispose of it according to applicable guidelines.

⚠WARNING

PERSONAL PROTECTIVE EQUIPMENT

You must wear appropriate protective equipment when operating, servicing, or when in the operating area of the equipment to help protect you from serious injury, including eye injury, hearing loss, inhalation of toxic fumes, and burns. This equipment includes but is not limited to:

- Protective eyewear, and hearing protection.
- Respirators, protective clothing, and gloves as recommended by the fluid and solvent manufacturer.

EQUIPMENT MISUSE HAZARD

Misuse can cause death or serious injury.

- Do not operate the unit when fatigued or under the influence of drugs or alcohol.
- Do not exceed the maximum working pressure or temperature rating of the lowest rated system component. See **Technical Data** in all equipment manuals.
- Use fluids and solvents that are compatible with equipment wetted parts. See **Technical Data** in all equipment manuals. Read fluid and solvent manufacturer's warnings. For complete information about your material, request MSDS from distributor or retailer.
- Do not leave the work area while equipment is energized or under pressure. Turn off all equipment and follow the **Pressure Relief Procedure** when equipment is not in use.
- Check equipment daily. Repair or replace worn or damaged parts immediately with genuine manufacturer's replacement parts only.
- Do not alter or modify equipment.
- Use equipment only for its intended purpose. Call your distributor for information.
- Route hoses and cables away from traffic areas, sharp edges, moving parts, and hot surfaces.
- Do not kink or over bend hoses or use hoses to pull equipment.
- Keep children and animals away from work area.
- Comply with all applicable safety regulations.

MOVING PARTS HAZARD

Moving parts can pinch, cut or amputate fingers and other body parts.

- Keep clear of moving parts.
- Do not operate equipment with protective guards or covers removed.
- Pressurized equipment can start without warning. Before checking, moving, or servicing equipment, follow the **Pressure Relief Procedure** and disconnect all power sources.

Installation

Grounding

The equipment must be grounded. Grounding reduces the risk of static and electric shock by providing an escape wire for the electrical current due to static build up or in the event of a short circuit.

Pump: use a ground wire and clamp. See FIG. 1. Remove the green ground screw (Z) from the bottom of the air motor. Insert the screw through the loop on the end of the ground wire (Y) and reattach the screw to the air motor. Connect the ground clamp to a true earth ground. Order Part No. 244524, Ground Wire and Clamp.

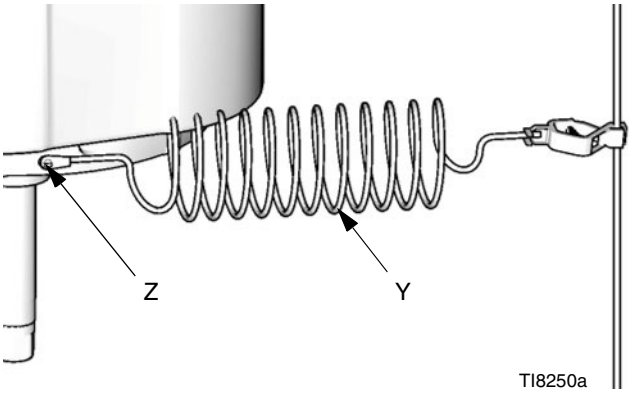


FIG. 1. Ground Wire

Air and fluid hoses: use only electrically conductive hoses with a maximum of 500 ft. (150 m) combined hose length to ensure grounding continuity. Check the electrical resistance of hoses. If total resistance to ground exceeds 25 megohms, replace hose immediately.

Air compressor: follow manufacturer's recommendations.

Surge tank: use a ground wire and clamp.

Dispense valve: ground through a connection to a properly grounded fluid hose and pump.

Fluid supply container: follow local code.

Object being sprayed: follow local code.

Solvent pails used when flushing: follow local code. Use only conductive metal pails, placed on a grounded surface. Do not place the pail on a nonconductive surface, such as paper or cardboard, which interrupts grounding continuity.

To maintain grounding continuity when flushing or relieving pressure: hold metal part of the spray gun firmly to the side of a grounded metal pail, then trigger the gun.

Stand Mount

Mount the pump in the accessory pump stand (B). Use Part No. 253692 Stand for 1000, 1500, and 2000cc Pumps (see FIG. 2, page 9) and Part No. 218742 Stand for 3000 and 4000cc Pumps (see FIG. 3, page 10).

See **Mounting Stand Hole Layouts** on page 24. Secure the stand to the floor with M19 (5/8 in.) bolts which engage at least 152 mm (6 in.) into the concrete floor to prevent the pump from tipping.

Wall Mount

1. Ensure the wall is strong enough to support the weight of the pump assembly and accessories, fluid, hoses, and stress caused during pump operation.
2. Ensure that the mounting location has sufficient clearance for easy operator access.
3. Position the wall bracket at a convenient height, ensuring that there is sufficient clearance for the fluid suction line and for servicing the lower.
4. Drill four 7/16 in. (11 mm) holes using the bracket as a template. Use any of the three mounting hole groupings in the bracket. See **255143 Wall Mount Bracket**, page 25.
5. Bolt the bracket securely to the wall using bolts and washers designed to hold in the wall's construction.
6. Attach the pump assembly to the mounting bracket.
7. Connect air and fluid hoses.

Plumbing

Install a fluid shutoff valve (D) between the mix tank (A) and the pump.

When using a stainless steel pump, use stainless steel plumbing to maintain a corrosion-resistant system.

Flush Before Using Equipment

The equipment was tested with lightweight oil, which is left in the fluid passages to protect parts. To avoid contaminating your fluid with oil, flush the equipment with a compatible solvent before using the equipment. See **Flushing**, page 12.

Accessories

Install the following accessories in the order shown in FIG. 2 and FIG. 3, using adapters as necessary.

NOTE: Accessory Air Control Kits are available for the NXT Air Motor. The kits include a master air valve, air regulator, and filter. Order the kit separately. See manual 311239 for more information.

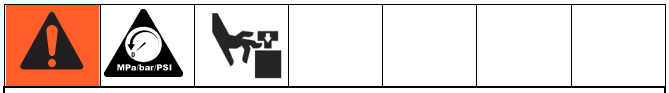
Air Line

See FIG. 2 and FIG. 3.

- **Bleed-type master air valve (M):** required in your system to relieve air trapped between it and the air motor when the valve is closed.

Trapped air can cause the pump to cycle unexpectedly, which could result in serious injury from splashing or moving parts.

Be sure the valve is easily accessible from the pump and located downstream from the air regulator. Be sure the air bleed hole points away from the operator.



The air motor is rated to 100 psi (0.7 MPa, 7.0 bar). If you will apply more than 100 psi (0.7 MPa, 7.0 bar) to the system, install a safety relief valve between the bleed-type master air valve and the air motor.

- **Pump air regulator (L):** to control pump speed and outlet pressure. Locate close to the pump.
- **Air line filter (K):** removes harmful dirt and moisture from compressed air supply.
- **Second bleed-type air valve (H):** isolates air line accessories for servicing. Locate upstream from all other air line accessories.

Fluid Line

See FIG. 2 and FIG. 3.

- **Fluid filter:** with a 60 mesh (250 micron) stainless steel element to filter particles from the fluid as it leaves the pump.
- **Fluid drain valve (N):** required in your system, to relieve fluid pressure in the hose and gun.
- **Fluid shutoff valve (D):** shuts off fluid flow.

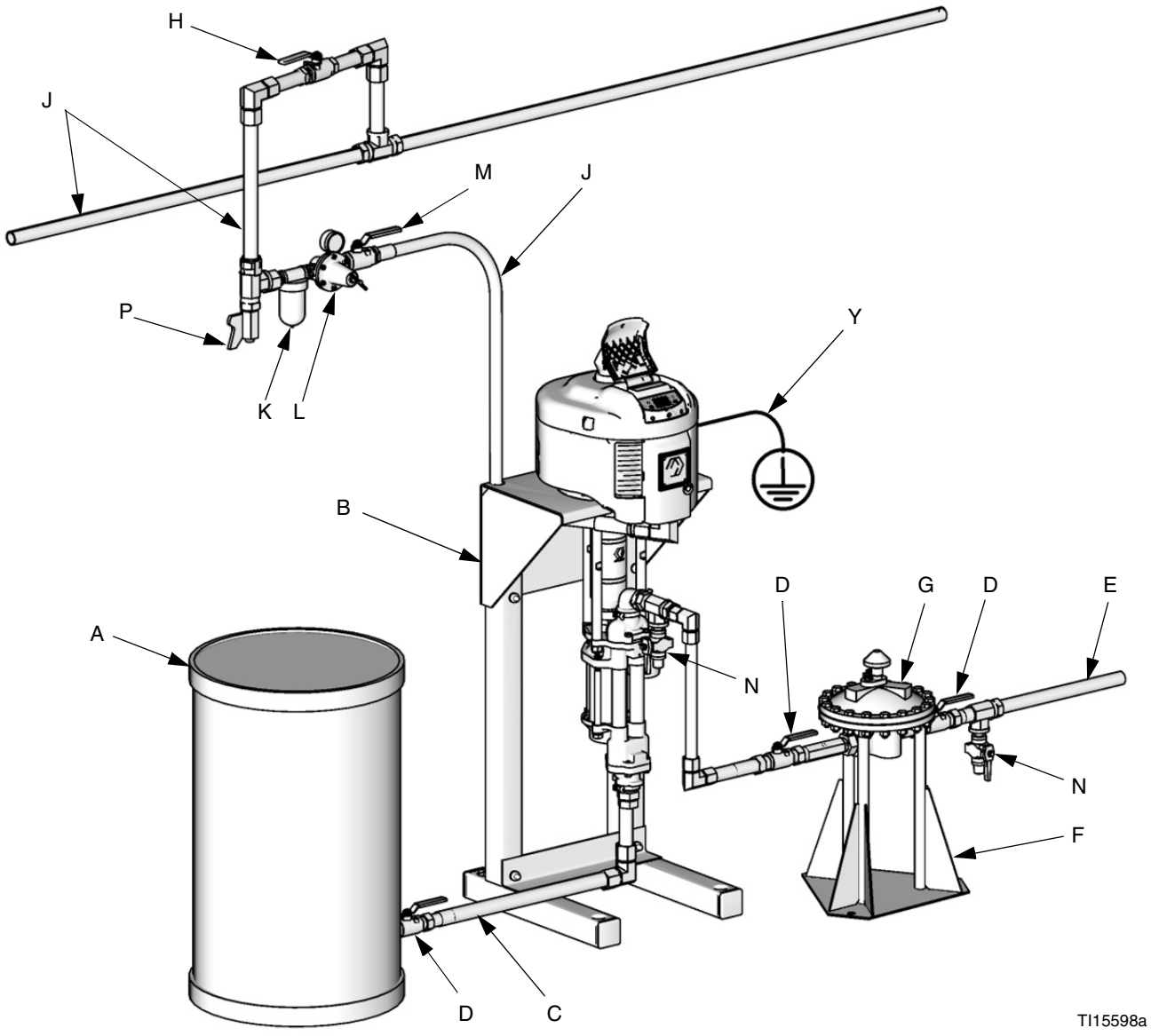


FIG. 2. Typical Installation for 1000, 1500, and 2000cc Pumps

Key:

A Mix Tank
B 253692 Pump Stand
C Fluid Supply Line; 1-1/2 in. (38 mm) minimum diameter
D Fluid Shutoff Valve
E Fluid Line
F Surge Tank Stand
G Surge Tank
H Air Shutoff Valve (bleed-type)
J Air Supply Line
K Air Line Filter
L Air Regulator and Gauge
M Bleed-Type Master Air Valve
N Fluid Drain Valve
P Air Line Drain Valve
Y Pump Ground Wire (required see page 6 for installation)

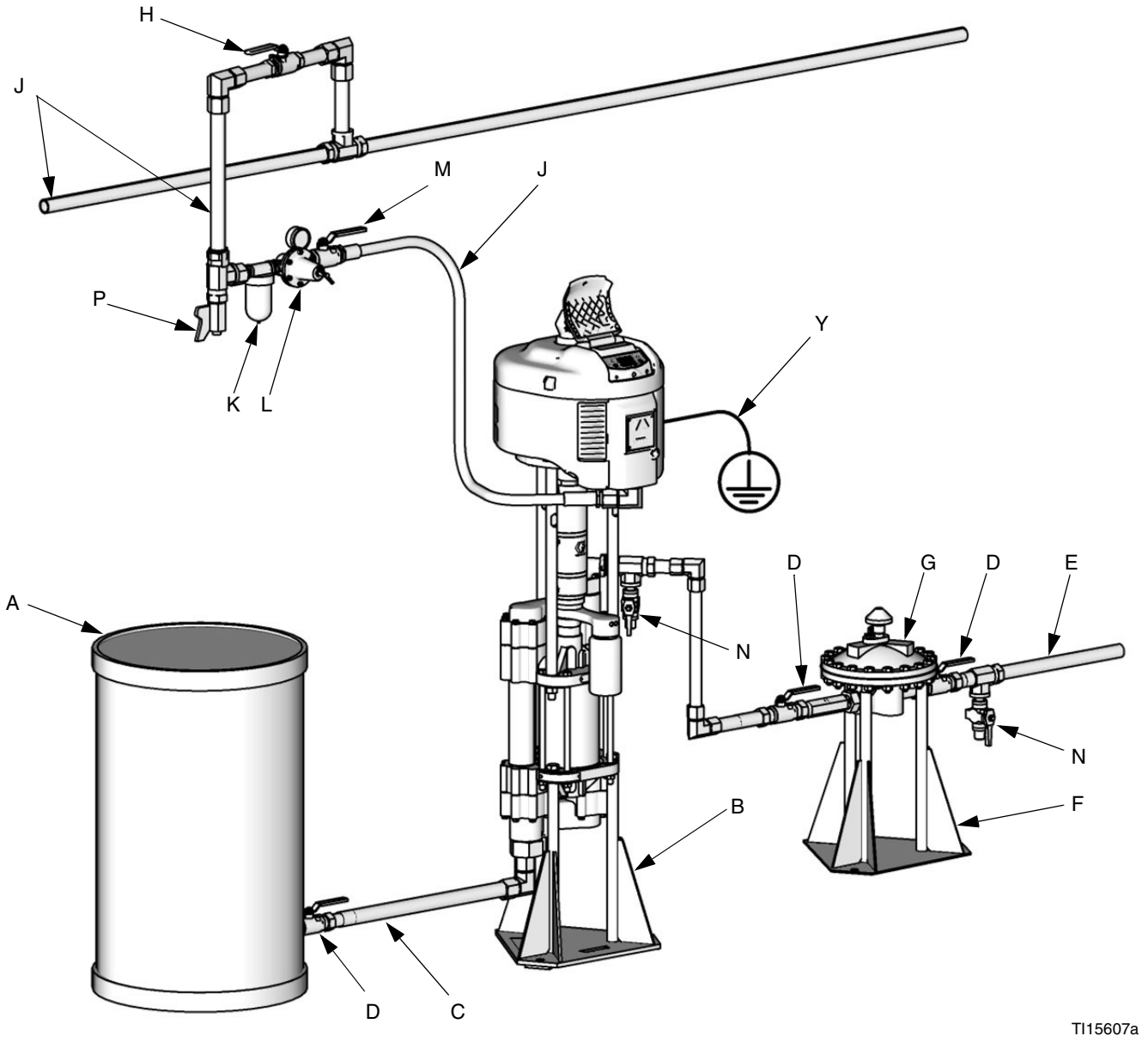


FIG. 3. Typical Installation for 3000 and 4000cc Pumps

Key:

A Mix Tank
B 218742 Pump Stand
C Fluid Supply Line; 2 in. (50 mm) minimum diameter
D Fluid Shutoff Valve
E Fluid Line
F Surge Tank Stand
G Surge Tank
H Air Shutoff Valve (bleed-type)
J Air Supply Line
K Air Line Filter
L Air Regulator and Gauge
M Bleed-Type Master Air Valve
N Fluid Drain Valve
P Air Line Drain Valve
Y Pump Ground Wire (required see page 6 for installation)

Operation

Pressure Relief Procedure

1. Close the bleed-type master air valve (M).
2. Open the dispensing valve, if used.
3. Open all fluid drain valves (N) in the system, having a waste container ready to catch drainage. Leave drain valve(s) open until you are ready to pump again.

Prime the Pump

1. Fill the TSL reservoir to the Maximum fill line with Throat Seal Liquid (TSL). See FIG. 4 on page 13.

NOTE: During operation the TSL level in the reservoir will fluctuate slightly at pump changeover.

2. Close pump air regulator (L) by turning knob counterclockwise reducing pressure to zero. Close bleed-type air valve (M). Also verify that all drain valves (N) are closed.
3. Connect air line (J) to bleed type air valve (M).
4. Check that all fittings throughout system are tightened securely.
5. Connect the fluid supply line (C) from the mix tank shutoff valve (D) to the pump.
6. Connect the fluid line (E) to the pump outlet.

NOTE: If your pump has DataTrak, see your separate NXT air motor manual for DataTrak instructions.

7. *Units with runaway protection only:* enable the prime/flush function by pushing the prime/flush button on the DataTrak.
8. Open bleed-type air valve (M). Slowly turn pump air regulator (L) clockwise, increasing pressure until pump starts.
9. Cycle pump slowly until all air is pushed out and pump and hoses are fully primed.
10. *Units with runaway protection only:* disable the prime/flush function by pushing the prime/flush button on the DataTrak.
11. Verify that pump actuations are priming the pump wet-cup. If not, confirm that the TSL pump piston is being depressed at bottom changeover, and that reservoir check valves are not stuck closed.
12. Close the fluid shutoff valve (D) downstream of the pump. The pump should stall against pressure.

NOTE: In a circulation system, the pump operates continuously until the power supply is shut off. In a direct-supply system, the pump starts when the dispense valve is opened, and stops when the dispense valve is closed.

Stop the Pump at the Bottom of Its Stroke

Relieve the pressure when you stop the pump for any reason. Stop the pump on the downstroke, before the air motor changes over.

NOTICE

Failure to stop the pump at the bottom of its stroke allows fluid to dry on the piston rod, which can damage the throat packings and the TSL pump piston seal when the pump is restarted.

Shutdown

Follow **Pressure Relief Procedure**, page 11.

Always flush the pump before the fluid dries on the displacement rod. See **Flushing** on page 12.

Maintenance

Preventive Maintenance Schedule

The operating conditions of your particular system determine how often maintenance is required. Establish a preventive maintenance schedule by recording when and what kind of maintenance is needed, and then determine a regular schedule for checking your system. Your maintenance schedule should include the following:

Flushing

- Flush before changing colors, before fluid can dry in the equipment, at the end of the day, before storing, and before repairing equipment.
- Flush at the lowest pressure possible. Check connectors for leaks and tighten as necessary.
- Flush with a fluid that is compatible with the fluid being dispensed and the equipment wetted parts.

Air Line Filter

Drain and clean as necessary.

Mix Tank Volume

Do not let the mix tank run dry. When the tank is empty, the pump demands more power as it tries to suck in some fluid. This causes the pump to run too fast, which can seriously damage the pump.

Stall Test

Perform a stall test periodically to ensure the piston seal is in good working condition and prevent system over-pressurization:

Close the fluid shutoff valve (D) closest to the pump on the downstroke and be sure that the pump stalls. Open the fluid shutoff valve to restart the pump. Close the fluid shutoff valve (D) closest to the pump on the upstroke and be sure that the pump stalls.

NOTICE

Do not allow the pump to run quickly for a long period of time as this may damage the packings.

Stop the pump on the downstroke, before the air motor changes over.

NOTICE

Failure to stop the pump at the bottom of its stroke allows fluid to dry on the piston rod, which can damage the throat packings and the TSL pump piston seal when the pump is restarted.

Changing the TSL

Check the condition of the TSL and the level in the reservoir every week, minimum. TSL should be changed at least every month.

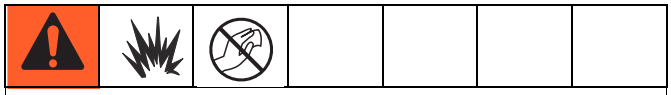
Part No. 206995 Throat Seal Liquid (TSL) carries residue from the pump rod into the reservoir. Discoloration of the TSL fluid is to be expected during normal operation. After some time the TSL will thicken and darken, and must be replaced. Thick, dirty TSL will not pump through the lines and will harden in the pump wet-cup.

How long TSL lasts depends on which chemicals are used, how much is used, what pressure, and condition of the pump seal and rod.

A drop in the level of TSL in the reservoir indicates that the throat packings are starting to wear. Add TSL to the reservoir and keep the level above the Minimum fill line. Monitor the usage and condition of the TSL. If pumped material bypasses the throat packings and enters the TSL reservoir, replace the packings.

To change the TSL:

1. Shut off the pump.



To avoid the buildup of static charge, do not rub the plastic bottle with a dry cloth while it is attached to the pump. Remove the bottle to clean, if needed.

2. Remove and empty the reservoir bottle. Clean any residue.
3. Clean screen (Z) of inlet check valve (VI). If check valves are not sealing and dirty TSL is getting into the wet-cup, replace the check valves (VI, VO). See FIG. 4.
4. Fill the reservoir to the Maximum fill line with Throat Seal Liquid (TSL).
5. Run pump. Each time pump rod reaches bottom of stroke, check that some TSL is pumped from reservoir through wet-cup and back to reservoir.

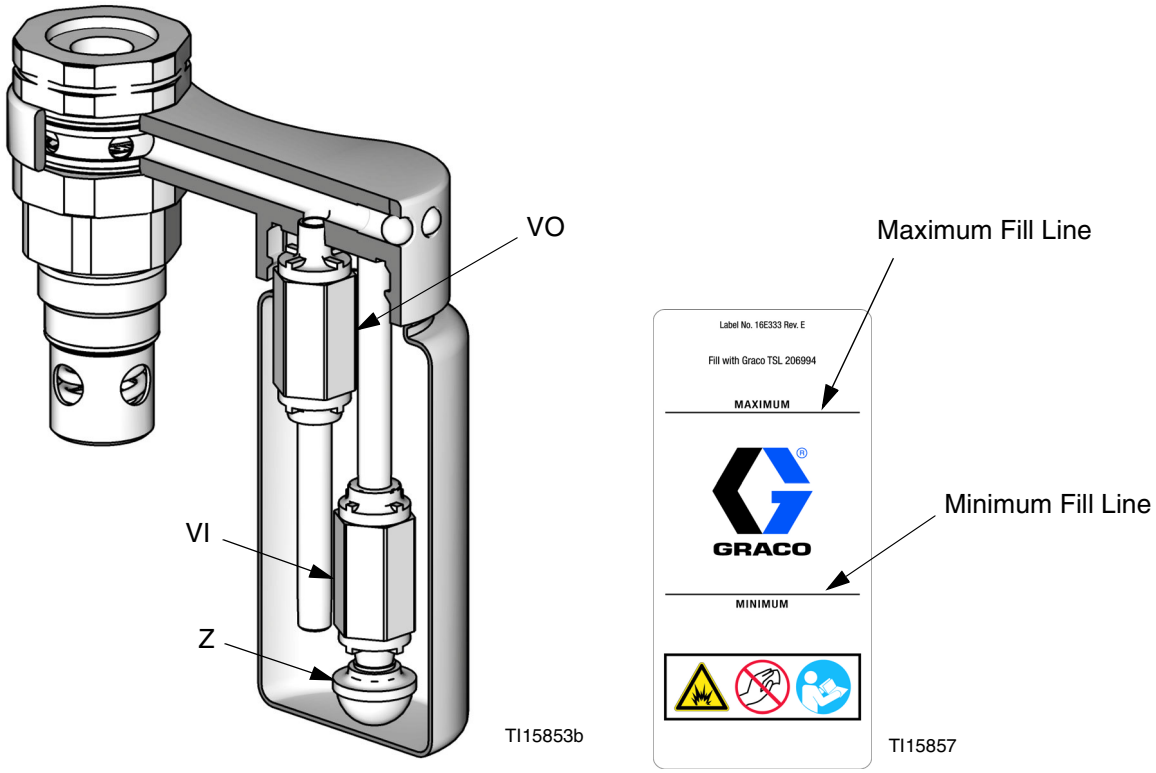


FIG. 4. Cutaway of TSL Reservoir, and Fill Lines

Troubleshooting

Problem	Cause	Solution
Pump output low on both strokes.	Restricted air supply lines.	Clear any obstructions; be sure all shutoff valves are open; increase pressure, but do not exceed maximum working pressure.
	Exhausted fluid supply.	Refill and reprime pump.
	Clogged fluid outlet line, valves, etc.	Clear.
	Worn piston packing.	Replace. See lower manual.
Pump output low on only one stroke.	Held open or worn ball check valves.	Check and repair.
	Worn piston packings.	Replace. See lower manual.
No output.	Improperly installed ball check valves.	Check and repair.
Pump operates erratically.	Exhausted fluid supply.	Refill and reprime pump.
	Held open or worn ball check valves.	Check and repair.
	Worn piston packing.	Replace. See lower manual.
Pump will not operate.	Restricted air supply lines.	Clear any obstructions; be sure all shut off valves are open; increase pressure, but do not exceed maximum working pressure.
	Exhausted fluid supply.	Refill and reprime pump.
	Clogged fluid outlet line, valves, etc.	Clear.
	Damaged air motor.	See air motor manual.
	Fluid dried on piston rod.	Disassemble and clean pump. See lower manual. In future, stop pump at bottom of stroke.

Repair

Disassembly

NOTE: The 3000 and 4000cc pumps are easiest to repair when left in the Part No. 218742 accessory pump stand and disassembled as instructed in the lower manual. For repair at a remote location, have another pump stand available.

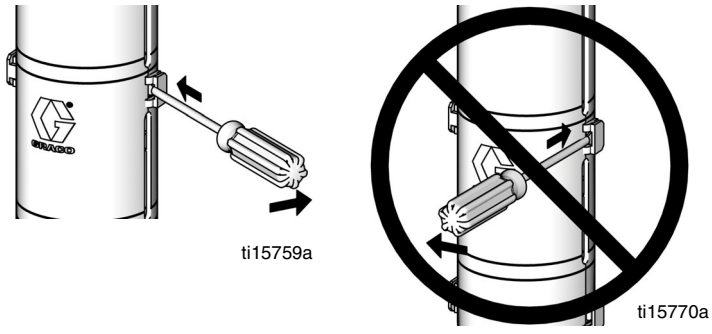
1. Relieve the pressure, see **Pressure Relief Procedure** page 11.
2. Disconnect the hoses from the lower and plug the ends to prevent fluid contamination.
3. See FIG. 5. Remove the 2-piece shield (122) by inserting a screwdriver straight into the slot, and using it as a lever to release the tab. Repeat for all tabs. **Do not** use the screwdriver to pry the shields apart.
4. Loosen the coupling nut (103) and remove the collars (104). Remove the coupling nut from the piston rod (R). Unscrew the locknuts (107) from the tie rods (106). Separate the motor (101) and lower (102). See FIG. 6.
5. To repair the air motor or lower, see the separate manuals listed under **Related Manuals** on page 3.

Reassembly

NOTE: If the coupling adapter (105) and tie rods (106) have been disassembled from the motor, see **Reassemble the Coupling Adapter and Tie Rods to the Motor** on page 17.

1. See FIG. 6. Assemble the coupling nut (103) to the piston rod (R).
2. Orient the lower (102) to the motor (101). Position the lower on the tie rods (106). Lubricate the threads of the tie rods. Screw the tie rod locknuts (107) onto the tie rods. Tighten the locknuts and torque to 50-60 ft-lb (68-81 N•m).
3. Insert the collars (104) into the coupling nut (103). Tighten the coupling nut onto the coupling adapter (105) and torque as specified in Table 1.
4. See FIG. 5. Install the shields (122) by engaging the bottom lips with the groove in the wet-cup cap (C). Snap the two shields together.
5. Flush and test the pump before reinstalling it in the system. Connect hoses and flush the pump. While it is pressurized, check for smooth operation and leaks. Adjust or repair as necessary before reinstalling in the system. Reconnect the pump ground wire before operating.

Shield Disassembly



Shield Reassembly

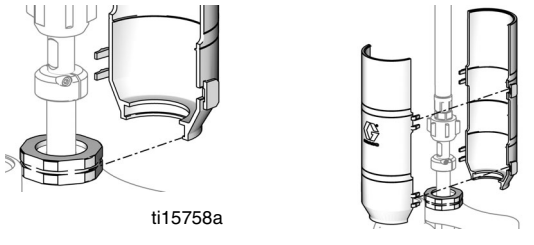
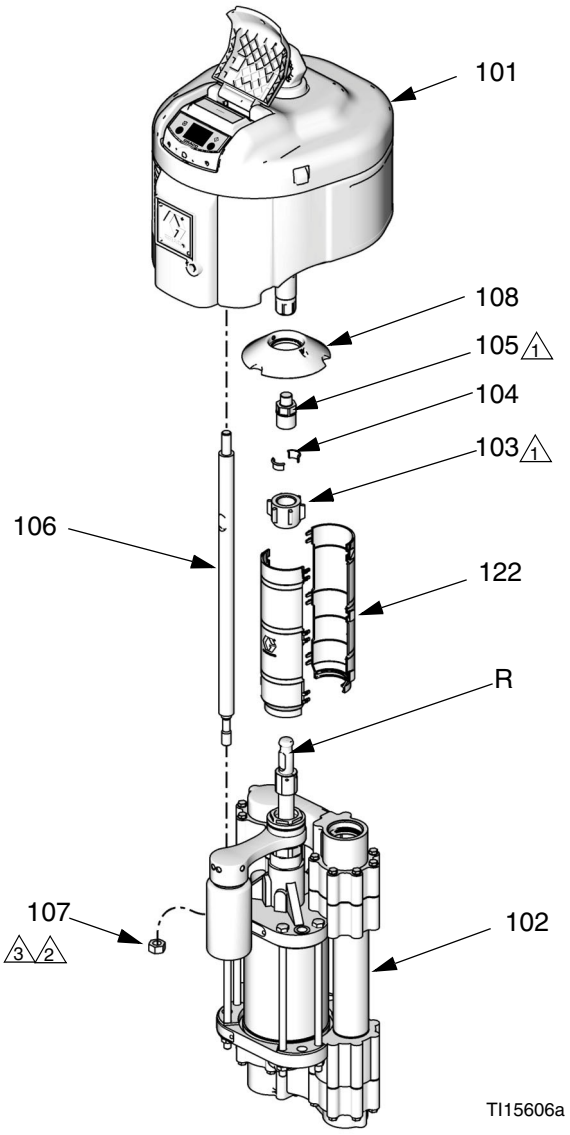


FIG. 5. Disassembly and Reassembly of the Shields



1 Torque as specified in Table 1.

2 Torque to 50-60 ft-lb (68-81 N•m).

3 Apply lubricant.

FIG. 6. Reassembly (3000 and 4000cc Pump Shown)

Table 1: Coupler Torque Values

Pump Part No. (see page 3)	Coupler Torque Value (items 103 and 105)
J_17__	145-155 ft-lb (196-210 N•m)
J_20__	90-100 ft-lb (122-135 N•m)
J_23__	145-155 ft-lb (196-210 N•m)
J_30__	90-100 ft-lb (122-135 N•m)
J_33__	145-155 ft-lb (196-210 N•m)
J_35__	90-100 ft-lb (122-135 N•m)
J_40__	90-100 ft-lb (122-135 N•m)
J_44__	145-155 ft-lb (196-210 N•m)
J_45__	90-100 ft-lb (122-135 N•m)

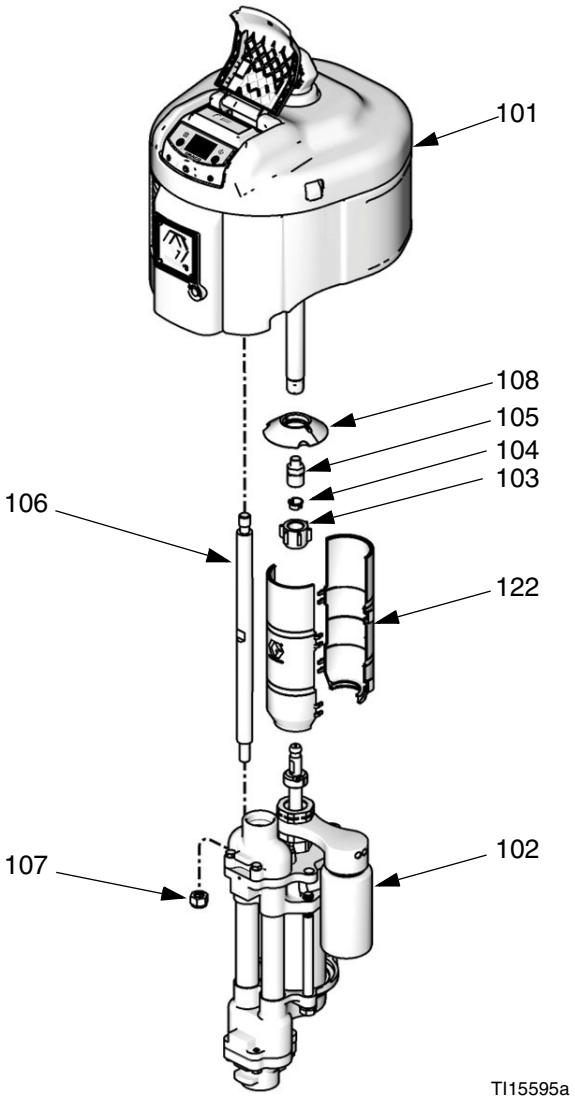
Reassemble the Coupling Adapter and Tie Rods to the Motor

NOTE: Use this procedure only if the coupling adapter (105) and tie rods (106) have been disassembled from the motor, to ensure proper alignment of the motor shaft to the piston rod (R).

1. See FIG. 6. Screw the tie rods (106) into the motor (101) and torque to 50-60 ft-lb (68-81 N•m).
2. Fill the cavity in the bottom of the motor shaft with grease. Install the moisture cover (108) on the motor shaft. Screw the coupling adapter (105) into the motor shaft and torque as specified in Table 1.
3. Assemble the coupling nut (103) to the piston rod (R).
4. Orient the lower (102) to the motor (101). Position the lower on the tie rods (106). Lubricate the threads of the tie rods. Screw the tie rod locknuts (107) onto the tie rods. Tighten the locknuts and torque to 50-60 ft-lb (68-81 N•m).
5. Insert the collars (104) into the coupling nut (103). Tighten the coupling nut onto the coupling adapter (105) and torque as specified in Table 1.

Parts

High-Flo Pumps with 1000cc, 1500cc, or 2000cc 4-Ball Lowers



Common Parts

Ref. No.	Description	Part No.	Qty.
101	MOTOR, NXT, see manual 311238	see tables, pages 18-19	1
102	LOWER, 4-Ball, see manual 3A0539	see tables, pages 18-19	1
103	NUT, coupling	184059	1
104	COLLAR, coupling	184128	2
105	ADAPTER, coupling	15H369	1
106	TIE ROD, 14.25 in. (362 mm) between shoulders	15G924	3
107	NUT, lock, hex; 9/16-12 unc	108683	3
108	COVER, moisture	247362	1
122	SHIELD KIT; includes 2 shields	24F251	1

2.0:1 Ratio, 2000cc Pumps

		101	102
Pump (see page 3)	**Pump Series**	**NXT Air Motor (see 311238)**	**4-Ball Lower (see 3A0539)**
JC20L1	**C**	N22LN0	24F447
JC20M1	**B**	N22LT0	24F447
JS20L1	**B**	N22LN0	24F440
JS20L2	**B**	N22LN0	24F443
JS20L5	**B**	N22LN0	24F441
JS20L6	**B**	N22LN0	24F442
JS20M1	**B**	N22LT0	24F440
JS20M2	**B**	N22LT0	24F443
JS20M5	**B**	N22LT0	24F441
JS20M6	**B**	N22LT0	24F442
JS20R1	**B**	N22RN0	24F440
JS20R2	**B**	N22RN0	24F443
JS20R5	**B**	N22RN0	24F441
JS20R6	**B**	N22RN0	24F442
JS20S1	**B**	N22RT0	24F440
JS20S2	**B**	N22RT0	24F443
JS20S5	**B**	N22RT0	24F441
JS20S6	**B**	N22RT0	24F442

3.0:1 Ratio, 1500cc Pumps

		101	102
Pump (see page 3)	Pump Series	NXT Air Motor (see 311238)	4-Ball Lower (see 3A0539)
JC30L1	A	N22LN0	24F439
JC30M1	A	N22LT0	24F439
JS30L1	B	N22LN0	24F432
JS30L2	B	N22LN0	24F433
JS30L5	B	N22LN0	24F434
JS30L6	B	N22LN0	24F435
JS30M1	B	N22LT0	24F432
JS30M2	B	N22LT0	24F433
JS30M5	B	N22LT0	24F434
JS30M6	B	N22LT0	24F435
JS30R1	B	N22RN0	24F432
JS30R2	B	N22RN0	24F433
JS30R5	B	N22RN0	24F434
JS30R6	B	N22RN0	24F435
JS30S1	B	N22RT0	24F432
JS30S2	B	N22RT0	24F433
JS30S5	B	N22RT0	24F434
JS30S6	B	N22RT0	24F435

4.0:1 Ratio, 1000cc Pumps

		101	102
Pump (see page 3)	Pump Series	NXT Air Motor (see 311238)	4-Ball Lower (see 3A0539)
JC40L1	A	N22LN0	24F431
JC40M1	A	N22LT0	24F431
JS40L1	B	N22LN0	24F424
JS40L2	B	N22LN0	24F425
JS40L5	B	N22LN0	24F426
JS40L6	B	N22LN0	24F427
JS40M1	B	N22LT0	24F424
JS40M2	B	N22LT0	24F425
JS40M5	B	N22LT0	24F426
JS40M6	B	N22LT0	24F427
JS40R1	B	N22RN0	24F424
JS40R2	B	N22RN0	24F425
JS40R5	B	N22RN0	24F426
JS40R6	B	N22RN0	24F427
JS40S1	B	N22RT0	24F424
JS40S2	B	N22RT0	24F425
JS40S5	B	N22RT0	24F426
JS40S6	B	N22RT0	24F427

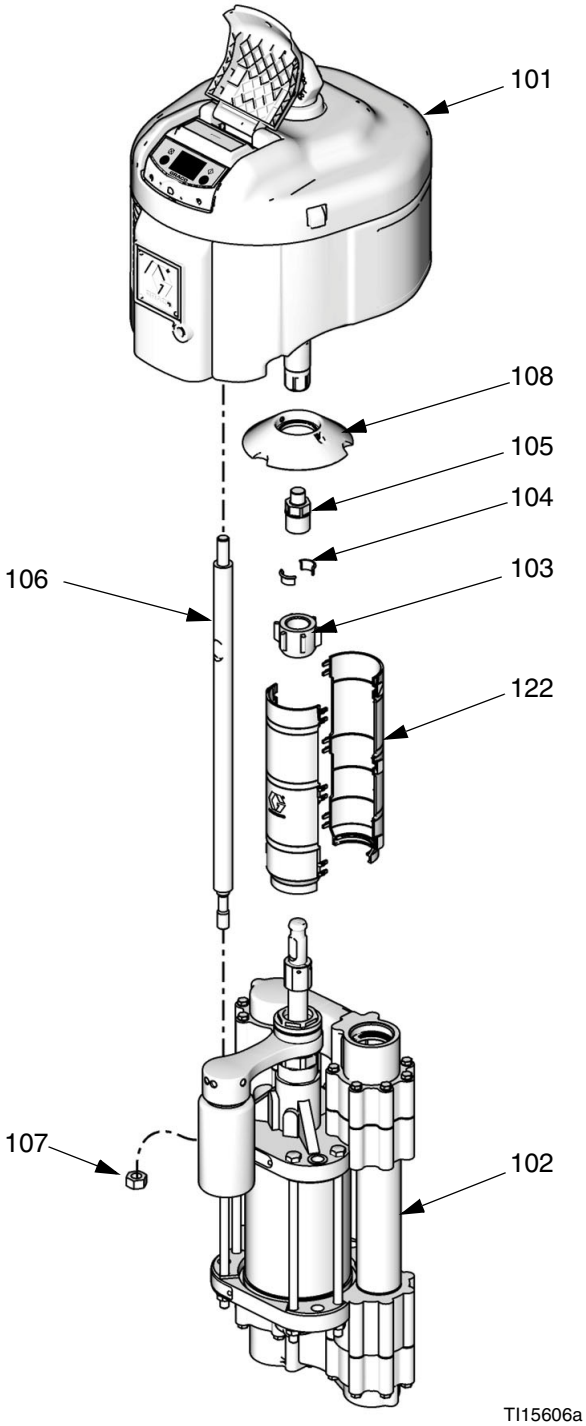
3.5:1 Ratio, 2000cc Pumps

		101	102
Pump (see page 3)	Pump Series	NXT Air Motor (see 311238)	4-Ball Lower (see 3A0539)
JC35L1	B	N34LN0	24F447
JC35M1	B	N34LT0	24F447
JS35L1	B	N34LN0	24F440
JS35L2	B	N34LN0	24F443
JS35L5	B	N34LN0	24F441
JS35L6	B	N34LN0	24F442
JS35M1	B	N34LT0	24F440
JS35M2	B	N34LT0	24F443
JS35M5	B	N34LT0	24F441
JS35M6	B	N34LT0	24F442
JS35R1	B	N34RN0	24F440
JS35R2	B	N34RN0	24F443
JS35R5	B	N34RN0	24F441
JS35R6	B	N34RN0	24F442
JS35S1	B	N34RT0	24F440
JS35S2	B	N34RT0	24F443
JS35S5	B	N34RT0	24F441
JS35S6	B	N34RT0	24F442

4.5:1 Ratio, 1500cc Pumps

		101	102
Pump (see page 3)	Pump Series	NXT Air Motor (see 311238)	4-Ball Lower (see 3A0539)
JC45L1	A	N34LN0	24F439
JC45M1	A	N34LT0	24F439
JS45L1	B	N34LN0	24F432
JS45L2	B	N34LN0	24F433
JS45L5	B	N34LN0	24F434
JS45L6	B	N34LN0	24F435
JS45M1	B	N34LT0	24F432
JS45M2	B	N34LT0	24F433
JS45M5	B	N34LT0	24F434
JS45M6	B	N34LT0	24F435
JS45R1	B	N34RN0	24F432
JS45R2	B	N34RN0	24F433
JS45R5	B	N34RN0	24F434
JS45R6	B	N34RN0	24F435
JS45S1	B	N34RT0	24F432
JS45S2	B	N34RT0	24F433
JS45S5	B	N34RT0	24F434
JS45S6	B	N34RT0	24F435

High-Flo Pumps with 3000cc or 4000 cc 4-Ball Lowers



Common Parts

Ref. No.	Description	Part No.	Qty.
101	MOTOR, NXT, see manual 311238	see tables, pages 21-21	1
102	LOWER, 4-Ball, see manual 3A0540	see tables, pages 21-21	1
103	NUT, coupling	186925	1
104	COLLAR, coupling	184129	2
105	ADAPTER, coupling	15H370	1
106	TIE ROD, 19.307 in. (490.398 mm) between shoulders	15H600	3
107	NUT, lock, hex; 5/8-11	102216	3
108	COVER, moisture	247362	1
122	SHIELD KIT; includes 2 shields	24F254	1

1.7:1 Ratio, 4000cc Pumps

		101	102
Pump (see page 3)	Pump Series	NXT Air Motor (see 311238)	4-Ball Lower (see 3A0540)
JC17L1	**A**	N34LN0	24F453
JC17M1	**A**	N34LT0	24F453
JS17L1	**A**	N34LN0	24F451
JS17L2	**A**	N34LN0	24F452
JS17M1	**A**	N34LT0	24F451
JS17M2	**A**	N34LT0	24F452
JS17R1	**A**	N34RN0	24F451
JS17R2	**A**	N34RN0	24F452
JS17S1	**A**	N34RT0	24F451
JS17S2	**A**	N34RT0	24F452

2.3:1 Ratio, 3000cc Pumps

		101	102
Pump (see page 3)	Pump Series	NXT Air Motor (see 311238)	4-Ball Lower (see 3A0540)
JC23L1	**A**	N34LN0	24F450
JC23M1	**A**	N34LT0	24F450
JS23L1	**A**	N34LN0	24F448
JS23L2	**A**	N34LN0	24F449
JS23M1	**A**	N34LT0	24F448
JS23M2	**A**	N34LT0	24F449
JS23R1	**A**	N34RN0	24F448
JS23R2	**A**	N34RN0	24F449
JS23S1	**A**	N34RT0	24F448
JS23S2	**A**	N34RT0	24F449

3.3:1 Ratio, 4000cc Pumps

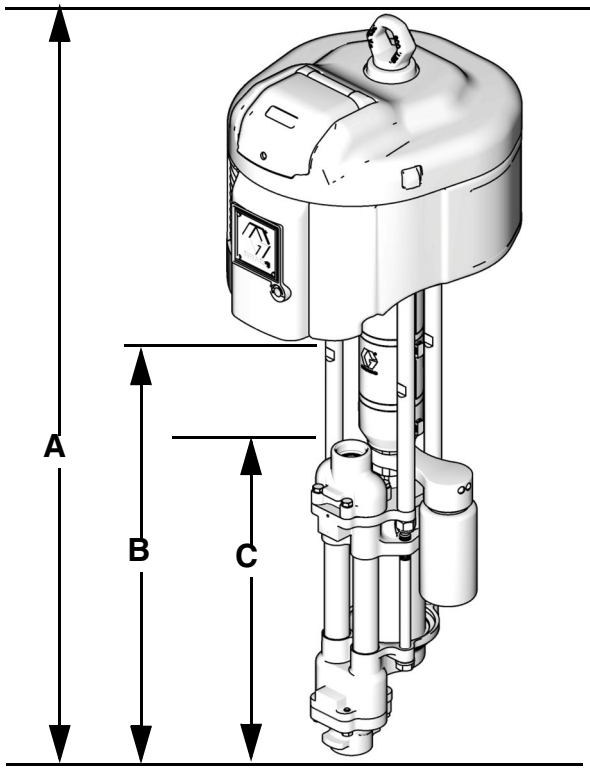
		101	102
Pump (see page 3)	Pump Series	NXT Air Motor (see 311238)	4-Ball Lower (see 3A0540)
JC33L1	**C**	N65LNO	24F453
JC33M1	**C**	N65LTO	24F453
JS33L1	**B**	N65LN0	24F451
JS33L2	**A**	N65LN0	24F452
JS33M1	**C**	N65LT0	24F451
JS33M2	**A**	N65LT0	24F452
JS33R1	**C**	N65RN0	24F451
JS33R2	**A**	N65RN0	24F452
JS33S1	**C**	N65RT0	24F451
JS33S2	**A**	N65RT0	24F452

4.4:1 Ratio, 3000cc Pumps

		101	102
Pump (see page 3)	Pump Series	NXT Air Motor (see 311238)	4-Ball Lower (see 3A0540)
JC44L1	**C**	N65LNO	24F450
JC44M1	**C**	N65LTO	24F450
JS44L1	**C**	N65LN0	24F448
JS44L2	**A**	N65LN0	24F449
JS44M1	**C**	N65LT0	24F448
JS44M2	**A**	N65LT0	24F449
JS44R1	**C**	N65RN0	24F448
JS44R2	**A**	N65RN0	24F449
JS44S1	**C**	N65RT0	24F448
JS44S2	**A**	N65RT0	24F449

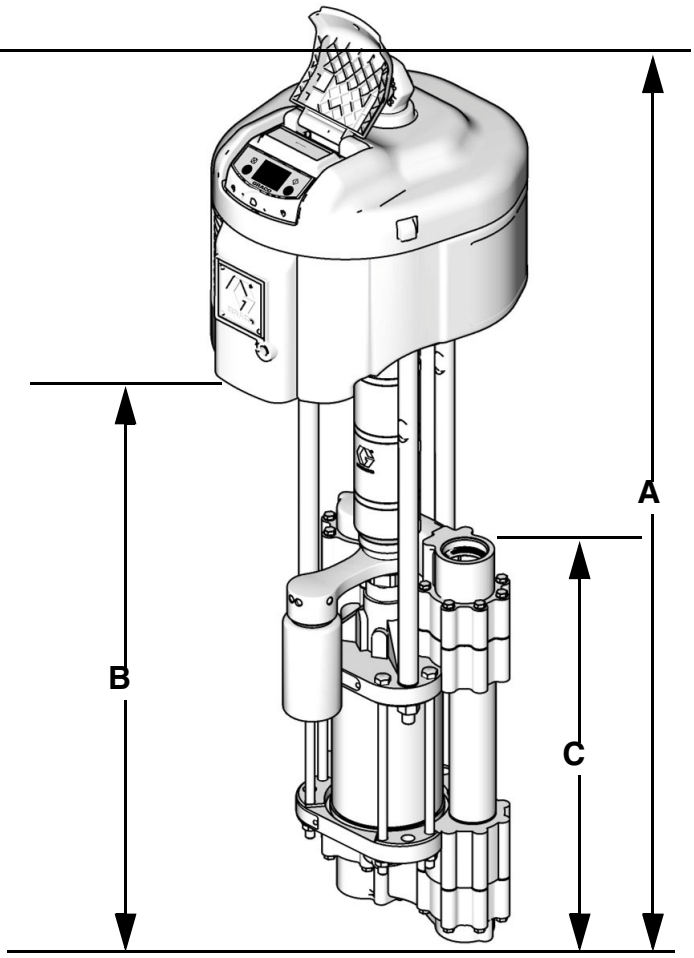
Dimensions

High-Flo 1000, 1500, and 2000cc Pumps



TI15596a

High-Flo 3000 and 4000cc Pumps

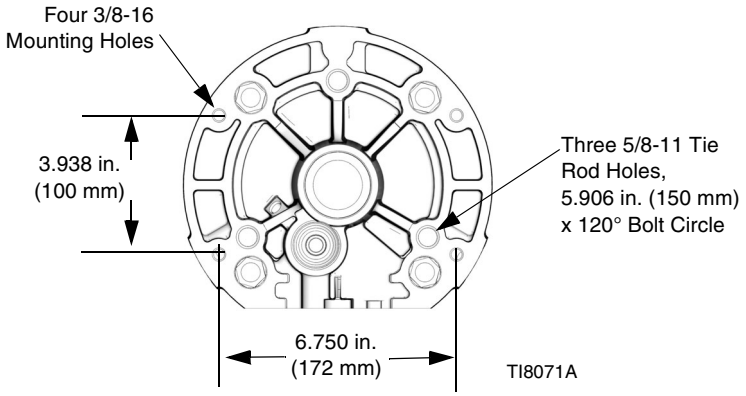


TI15605a

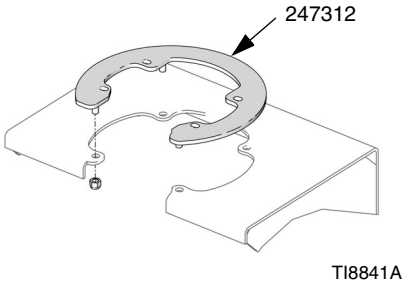
Model	Motor	Lower Size	A in. (mm)	B in. (mm)	C in. (mm)	Approx. Weight lb (kg)
JX40XX	NXT2200	1000cc	45.6 (1158)	28.78 (731)	17.4 (442)	94 (42.6)
JX30XX	NXT2200	1500cc				95 (43.1)
JX20XX	NXT2200	2000cc				96 (43.5)
JX45XX	NXT3400	1500cc				99 (44.9)
JX35XX	NXT3400	2000cc				100 (45.4)
JX23XX	NXT3400	3000cc	51.4 (1306)	35.5 (901)	23.0 (584)	159 (72.1)
JX17XX	NXT3400	4000cc				161 (73.0)
JX44XX	NXT6500	3000cc				178 (80.7)
JX33XX	NXT6500	4000cc				180 (81.6)

Motor Mounting Hole Diagrams

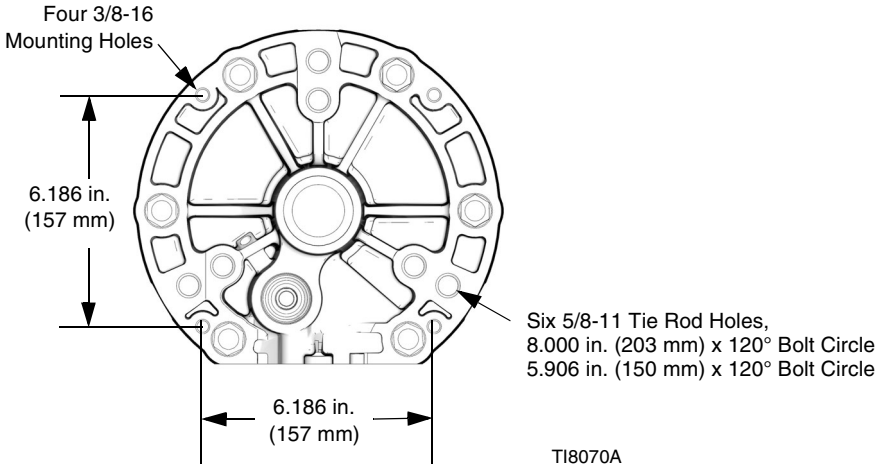
NXT Model 2200



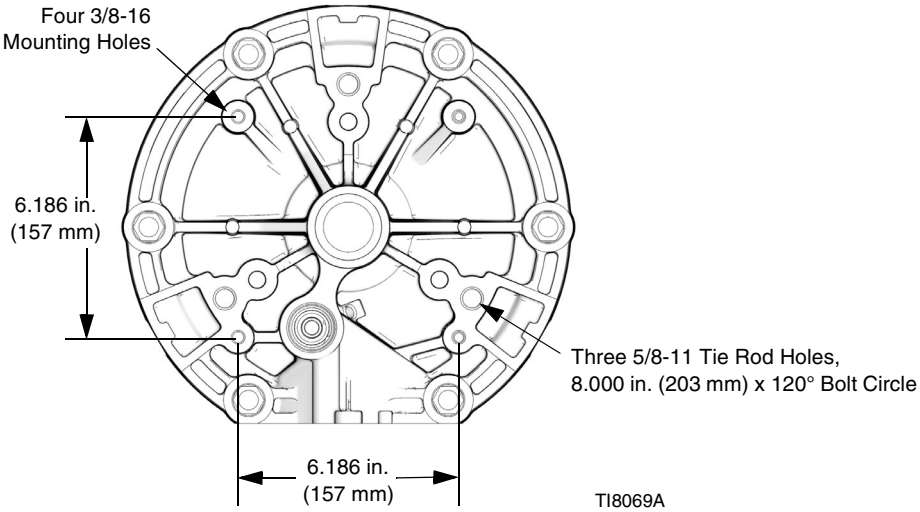
NOTE: Adapter Plate 247312 is required to mount an NXT 2200 air motor to the 255143 Wall Bracket. Order separately.



NXT Model 3400

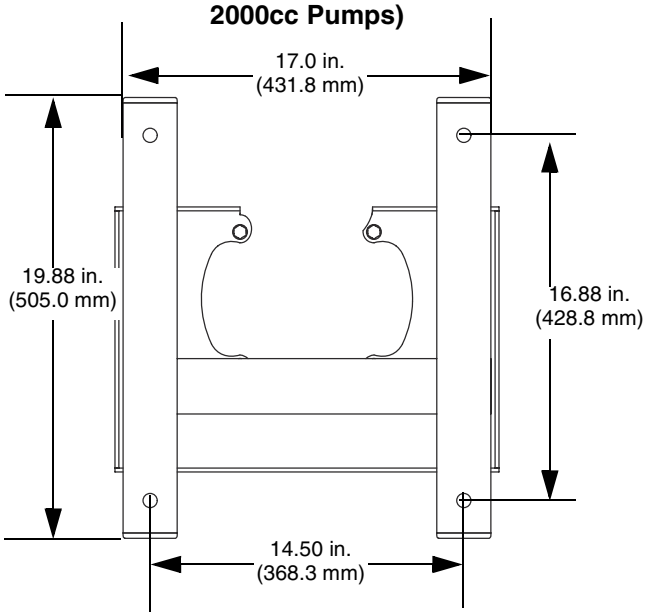


NXT Model 6500



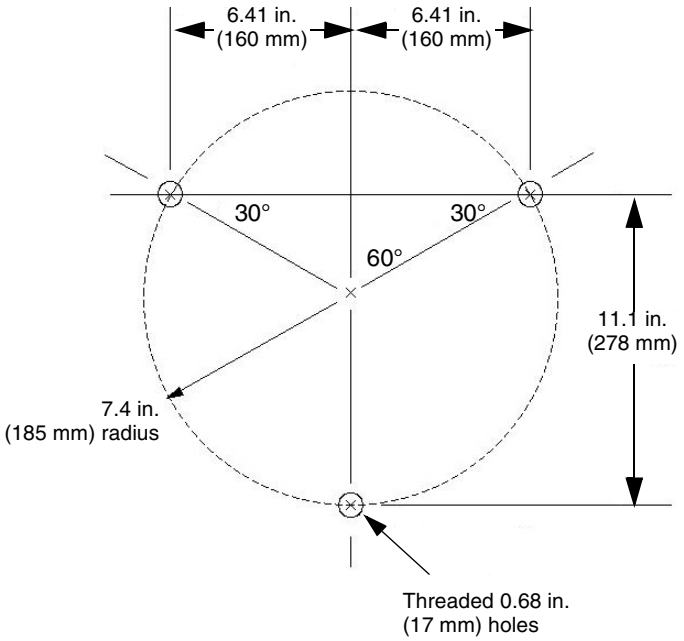
Mounting Stand Hole Layouts

253692 Floor Stand (for 1000, 1500, and 2000cc Pumps)

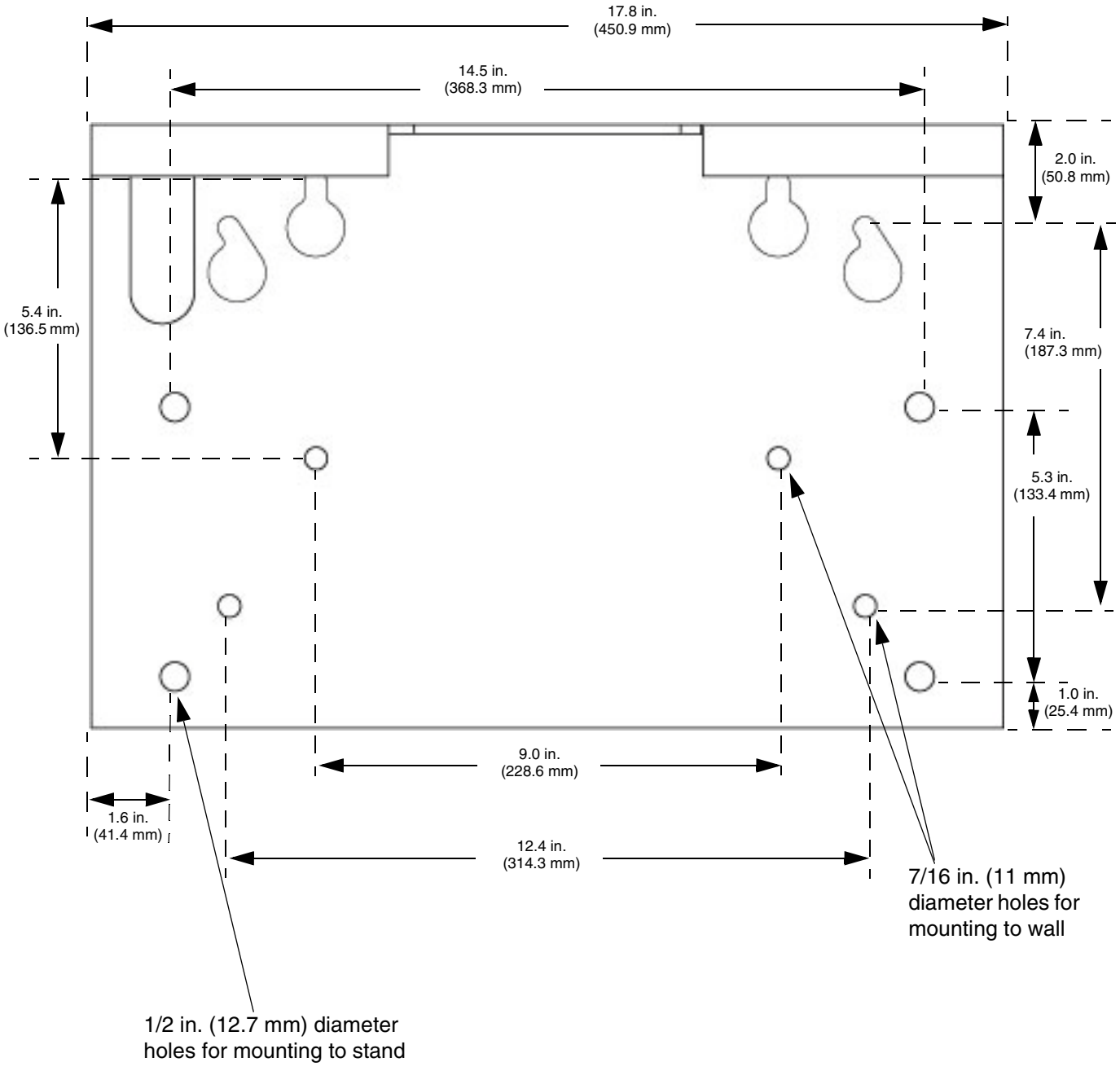


TI15859a

218742 Floor Stand (for 3000 and 4000cc Pumps)



255143 Wall Mount Bracket



TI8614B

Technical Data

Model	Maximum Working Pressure psi (MPa, bar)	Maximum Air Input Pressure psi (MPa, bar)	Air Consumption	Fluid Flow at 60 cycles per minute gpm (lpm)	Output per Cycle (cc)	Maximum Fluid Temperature Rating °F (°C)
JX17XX	170 (1.2, 12.0)	100 (0.7, 7.0)	See Performance Charts	63 (238.6)	4000	150° (66°)
JX20XX	200 (1.4, 14.0)			31.5 (119.3)	2000	
JX23XX	230 (1.6, 16.0)			47.3 (179)	3000	
JX30XX	300 (2.1, 21.0)			23.2 (87.9)	1500	
JX33XX	330 (2.3, 23.0)			63 (238.6)	4000	
JX35XX	350 (2.4, 24.0)			31.5 (119.3)	2000	
JX40XX	400 (2.8, 28.0)			16.9 (64)	1000	
JX44XX	440 (3.0, 30.0)			47.3 (179)	3000	
JX45XX	450 (3.1, 31.0)			23.2 (87.9)	1500	

Sound data: See NXT motor manual 311238.

Wetted parts: See 4-Ball Lower manual 3A0539 (1000cc, 1500cc, 2000 cc) or 3A0540 (3000cc, 4000cc).

Performance Charts

Fluid Outlet Pressure - Black Curves

To find Fluid Outlet Pressure (psi/MPa/bar) at a specific fluid flow (gpm/lpm) and operating air pressure (psi/MPa/bar):

1. Locate desired flow along bottom of chart.
2. Follow vertical line up to intersection with selected fluid outlet pressure curve (black).
3. Follow left to scale to read fluid outlet pressure.

Air Consumption - Gray Curves

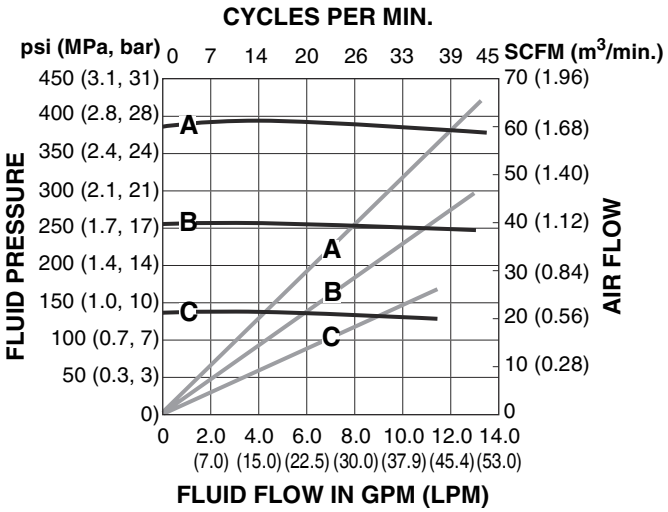
To find Pump Air Consumption (scfm or m^3/min.) at a specific fluid flow (gpm/lpm) and air pressure (psi/MPa/bar):

1. Locate desired flow along bottom of chart.
2. Read vertical line up to intersection with selected air consumption curve (dashes).
3. Follow right to scale to read air consumption.

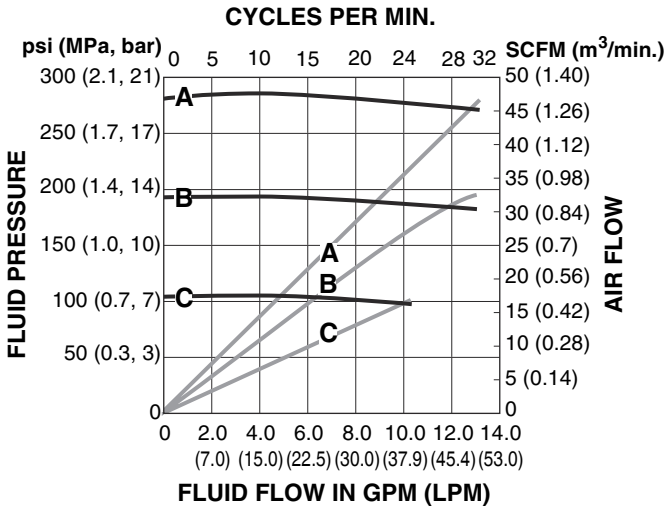
Key:
A 100 psi (0.7 MPa, 7.0 bar) air pressure
B 70 psi (0.49 MPa, 4.9 bar) air pressure
C 40 psi (0.28 MPa, 2.8 bar) air pressure

NOTE: See **Models** on page 3 for your pump part number.

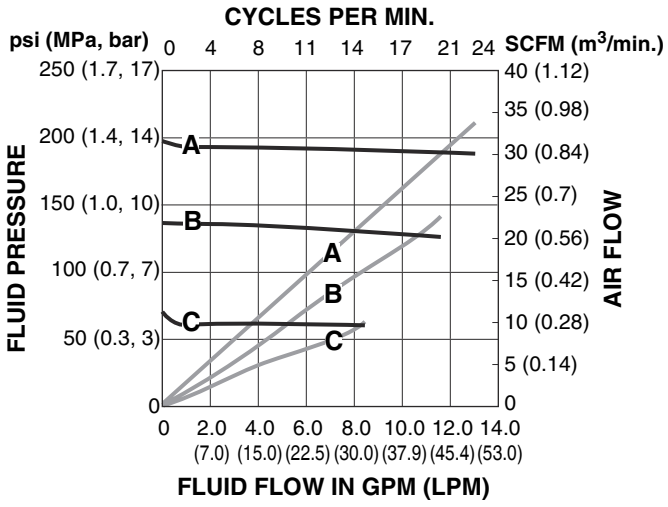
NXT 2200 Air Motor, 1000cc Lower (JX40XX)



NXT 2200 Air Motor, 1500cc Lower (JX30XX)



NXT 2200 Air Motor, 2000cc Lower (JX20XX)

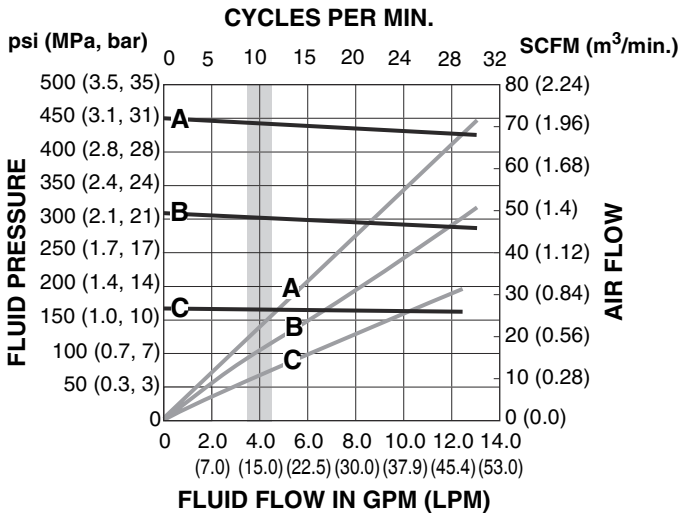


NOTE: See **Models** on page 3 for your pump part number.

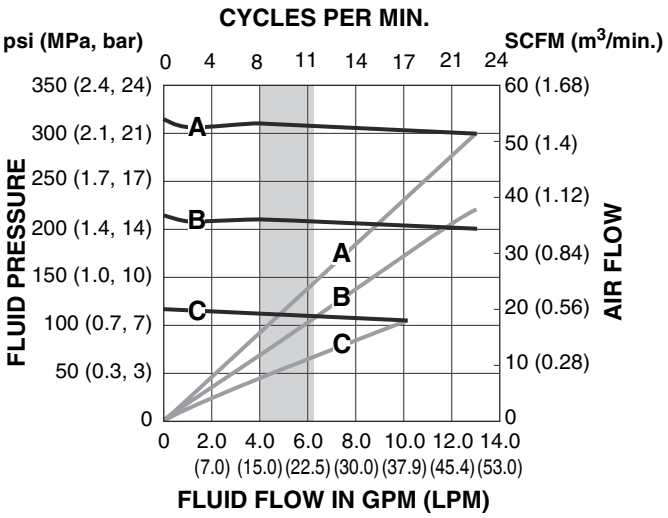
Key:
A 100 psi (0.7 MPa, 7.0 bar) air pressure
B 70 psi (0.49 MPa, 4.9 bar) air pressure
C 40 psi (0.28 MPa, 4.8 bar) air pressure

NOTE: The shaded area within the table shows the recommended range for continuous duty circulation applications.

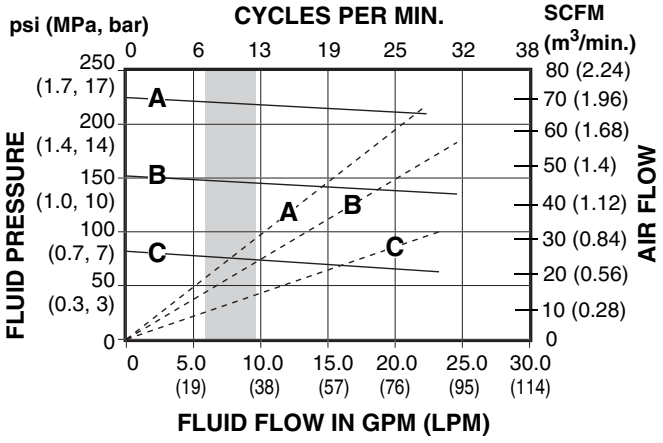
NXT 3400 Air Motor, 1500cc Lower (JX45XX)



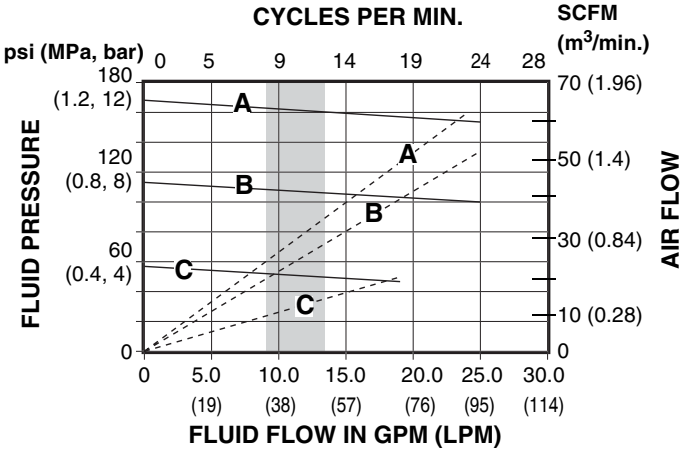
NXT 3400 Air Motor, 2000cc Lower (JX35XX)



NXT 3400 Air Motor, 3000cc Lower (JX23XX)



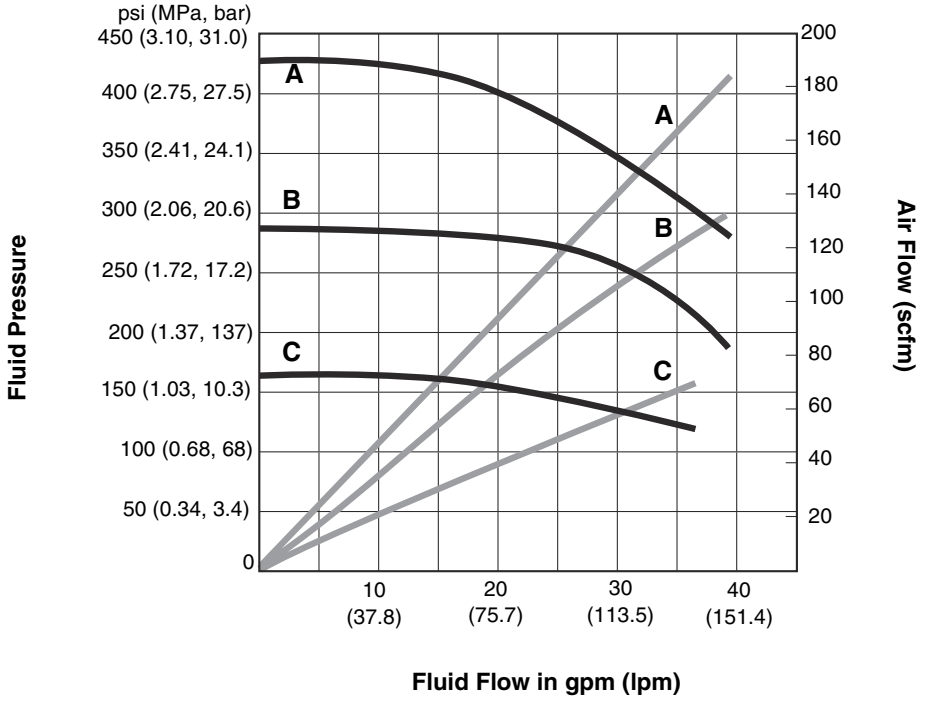
NXT 3400 Air Motor, 4000cc Lower (JX17XX)



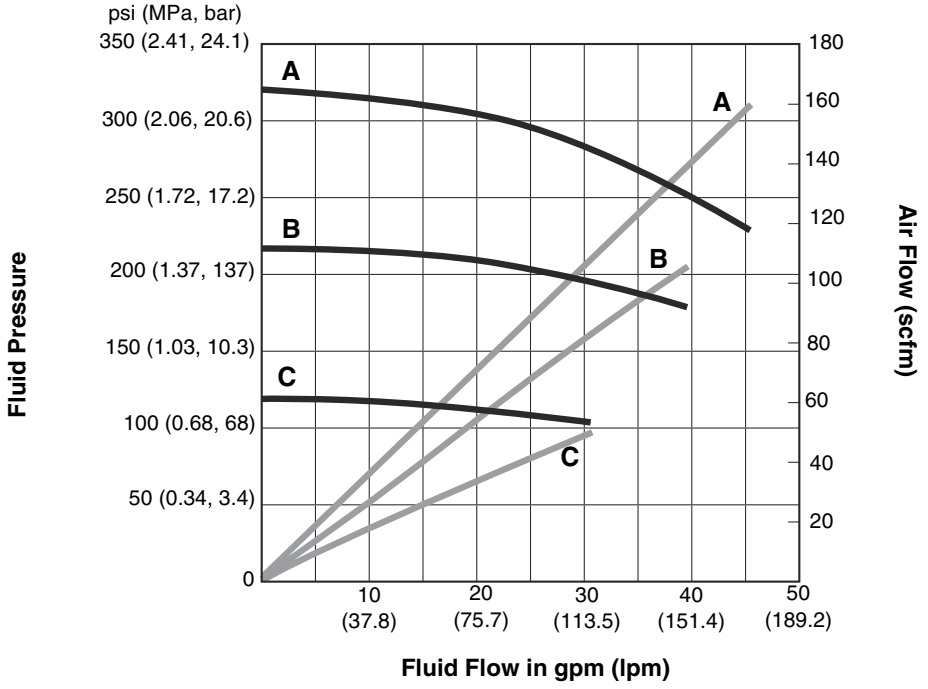
NOTE: See **Models** on page 3 for your pump part number.

Key:
A 100 psi (0.7 MPa, 7.0 bar) air pressure
B 70 psi (0.49 MPa, 4.9 bar) air pressure
C 40 psi (0.28 MPa, 2.8 bar) air pressure

NXT 6500 Air Motor, 3000cc Lower (JX44XX)



NXT 6500 Air Motor, 4000cc Lower (JX33XX)



Graco Standard Warranty

Graco warrants all equipment referenced in this document which is manufactured by Graco and bearing its name to be free from defects in material and workmanship on the date of sale to the original purchaser for use. With the exception of any special, extended, or limited warranty published by Graco, Graco will, for a period of twelve months from the date of sale, repair or replace any part of the equipment determined by Graco to be defective. This warranty applies only when the equipment is installed, operated and maintained in accordance with Graco's written recommendations.

This warranty does not cover, and Graco shall not be liable for general wear and tear, or any malfunction, damage or wear caused by faulty installation, misapplication, abrasion, corrosion, inadequate or improper maintenance, negligence, accident, tampering, or substitution of non-Graco component parts. Nor shall Graco be liable for malfunction, damage or wear caused by the incompatibility of Graco equipment with structures, accessories, equipment or materials not supplied by Graco, or the improper design, manufacture, installation, operation or maintenance of structures, accessories, equipment or materials not supplied by Graco.

This warranty is conditioned upon the prepaid return of the equipment claimed to be defective to an authorized Graco distributor for verification of the claimed defect. If the claimed defect is verified, Graco will repair or replace free of charge any defective parts. The equipment will be returned to the original purchaser transportation prepaid. If inspection of the equipment does not disclose any defect in material or workmanship, repairs will be made at a reasonable charge, which charges may include the costs of parts, labor, and transportation.

THIS WARRANTY IS EXCLUSIVE, AND IS IN LIEU OF ANY OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO WARRANTY OF MERCHANTABILITY OR WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE.

Graco's sole obligation and buyer's sole remedy for any breach of warranty shall be as set forth above. The buyer agrees that no other remedy (including, but not limited to, incidental or consequential damages for lost profits, lost sales, injury to person or property, or any other incidental or consequential loss) shall be available. Any action for breach of warranty must be brought within two (2) years of the date of sale.

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